

NOTE

The Prevalence of *Icosta americana* (Diptera: Hippoboscidae) on
Ruffed Grouse (*Bonasa umbellus*) in Wisconsin

Little has been published regarding the distribution of *Icosta americana* (Leach) from ruffed grouse, *Bonasa umbellus* L., in Wisconsin. MacArthur (1948. Bull. Public Mus. Mil. 8: 367-440) reported *americana* from a "partridge," locality unknown and Bequaert (1955. Entomol. Am. 34-35(N.S.): 1-611) reported infected grouse from three counties. Because of the lack of information from other areas of the state, our study was initiated.

From 1968 through 1985, 206 ruffed grouse were collected by the senior author and his father from seven Wisconsin counties and examined for *americana*. Prevalence of infection in the samples was: 11/80 Richland Co.; 1/98 Portage Co.; 0/17 Adams Co.; 0/4 Chippewa Co.; 0/2 Forest Co.; 0/4 Monroe Co.; and 0/1 Waushara Co. Seven grouse from Richland Co. harbored one *americana* each and four birds carried two flies each, while the infected Portage Co. grouse had one. Infection rate in southwestern Richland Co. (13.7%) was considerably higher than the approximately 1% in the more central Portage Co.

In the 1984 and 1985 seasons Wisconsin hunters were asked to collect any flies seen on ruffed grouse. Six additional hippoboscids were collected: two from Tremapeleau Co., and one each from Grant, Richland, Jackson, and Rusk counties. All of these are in the lower two-thirds of Wisconsin with the exception of Rusk which is in the upper one-third.

The reason for this distribution is unknown and may be related to one or more ecological factors. Bequaert (op. cit.) suggested *americana* may not occur north of 48°10' latitude, approximately the Cana-

dian border in central United States. Bennett (1961. Can. J. Zool. 39: 379-406) found only a "few" specimens of *americana* from more than 400 ruffed grouse in Ontario and 63 ruffed grouse and spruce grouse (*Canaachites canadensis* L.) taken between July and November in Algonquin Park, Ontario just slightly south of 48°10' north latitude.

In Wisconsin there is a tension zone dividing the state into two floristic provinces (Curtis, 1959, The Vegetation of Wisconsin. The University of Wisconsin Press, Madison, WI). The southwest third of the state contains southern hardwood forests with some prairie elements, and the northern half features coniferous-hardwood forests with a few boreal elements. The narrow tension zone separating each province contains members of each.

Bequaert (op. cit.) records *americana* from ruffed grouse in Clark, Marathon, and Rusk counties. Although these counties are just north of the tension zone, our data suggest this fly is more common on grouse in or below the tension zone.

Bequaert (op. cit.) believed that native galliform birds were the original hosts of *americana*, and that raptors later acquired the fly by preying on game birds. Conversely, Bennett (op. cit.) believed *americana* is primarily a parasite of birds of prey and occur only accidentally on galliformes.

By definition, accidental parasites are rare, do not breed on their host, and remain with the host only for a short period of time. That 13.7% of ruffed grouse from Richland Co. have this parasite argues against its being accidental on grouse. Also, in three instances female *americana* were captured alive and viable. When placed in a jar, they

larviposited. Female *americana* carrying larvae and a male were collected as late as January 28.

These data suggest *americana* is common on grouse in southern Wisconsin. This species most likely breeds on the host, and female *americana* may overwinter with larvae in utero.

Voucher specimens of two *americana* from ruffed grouse are deposited in the National Museum of Natural History in Washington, D.C. The remainder of the speci-

mens are in the Museum collection at the University of Wisconsin-Stevens Point.

We thank D. J. Taft for his help in collecting *americana*.

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BOOK NOTICE

The Insect and Spider Collections of the World, by Ross H. Arnett, Jr. and G. A. Samuelson, assisted by John B. Heppner, Gordon M. Nishida, J. Charles Watt, and Robert E. Woodruff. E. J. Brill Publishers, New York, NY. 1986. 220 pp. Cost: \$19.95 (paper with plastic comb binding).

Part I has a list and description of 918 public collections known to exist; 377 of the major collections are described in detail. They are arranged alphabetically by country, state/province, and city. Every country in the world is listed—those without known collections are indicated. The mailing address of each museum is cited, and a four-letter coden is assigned to each. If a questionnaire was returned, the names of curators, phone numbers, details about the size

and content of the collection, and data about primary types and special collections are given.

Part II has a list and descriptions of 211 private collections, arranged alphabetically by owner's name, with pertinent data. A coden is assigned to each collection.

To systematists who borrow specimens for research and to collectors who would like to have their collections identified and used in research, this list will be most welcome. (E. J. Brill, founded in 1683 in The Netherlands, now has an office in USA: Suite 404, 225 W. 57th St., NYC 10019.)

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